

First Named Inventor: Lon S. Weiner et al.

Application No.:

-4-

IN THE CLAIMS

Please cancel claims 1-20 and add new claims 21-41, such that the claims are as follows:

1. (Canceled).

2. (Canceled).

3. (Canceled).

4. (Canceled).

5. (Canceled).

6. (Canceled).

7. (Canceled).

8. (Canceled).

9. (Canceled).

10. (Canceled).

11. (Canceled).

12. (Canceled).

13. (Canceled).

14. (Canceled).

15. (Canceled).

16. (Canceled).

17. (Canceled).

18. (Canceled).

19. (Canceled).

20. (Canceled).

21. (New) A method of repairing a fractured wrist, comprising:
performing a fixation surgery comprising:

placing a plurality of radius pins of an external fixator assembly transversely
into a radius proximally of the fracture, the external fixator assembly
comprising:

a support structure extending generally parallel to the radius and
perpendicular to the radius pins, the support structure having
a proximal section which releasably holds the plurality of
radius pins, the support structure having a mid-section and a
distal section;

an outrigger extending generally transversely from the mid-section of the support structure, the outrigger having at least one fragment pin releasably attachable thereto; and
a plurality of metacarpal pins releasably held by the distal section of the support structure;
securing the radius pins relative to the support structure, thereby fixing the support structure relative to the radius;
placing the plurality of metacarpal pins transversely into a metacarpal;
securing the metacarpal pins relative to the support structure, such that the external fixator assembly fixes the metacarpal relative to the radius;
placing the fragment pin into a radial bone fragment; and
securing the fragment pin relative to the outrigger;
after an initial healing duration, performing a wrist-release surgery, comprising:
removing the metacarpal pins from the metacarpal, thereby permitting at least a limited degree of wrist flexation; and
after a secondary healing duration, performing an external fixator removal surgery, comprising:
removing the radius pins from the radius; and
removing the fragment pin from the healed fragment.

22. (New) The method of claim 21, further comprising:
at the time of the wrist-release surgery, removing the distal section of the support structure from the proximal section and mid-section of the support structure.

23. (New) The method of claim 21, wherein the proximal section and mid-section of the support structure are provided by a main body, and wherein the distal section is pivotally attached to the mid-

section to permit pivoting of the distal section relative to the main body, wherein the act of securing the metacarpal pins relative to the support structure comprises:

securing the distal section of the support structure relative to the main body.

24. (New) The method of claim 23, wherein the distal section when unsecured pivots relative to the main body at least commensurate with anatomical pivoting of the metacarpal relative to the radius.

25. (New) A method of repairing a fracture in or adjacent a long bone and at a joint, which fracture produces a bone fragment either partly or completely detached from the long bone, comprising:

performing a joint and fracture fixation surgery comprising:

securing a main body of an external fixator assembly such that it extends generally parallel to the long bone external to the patient's tissue, the external fixator assembly further comprising an outrigger which extends from the main body generally transversely over the fracture external to the patient's tissue, and a distal body which extends distally from the main body external to the patient's tissue;

placing a fragment pin into the bone fragment, and using the outrigger to secure the fragment pin relative to the main body;

securing the distal body of the external fixator assembly relative to a bone opposite the joint from the long bone, to thereby restrict movement of the joint;

after an initial healing duration with the joint and fracture fixed relative to the long bone by the external fixator assembly, releasing the distal body, thereby permitting at least a limited degree of joint flexation, while leaving the

fragment pin supported by the main body and outrigger relative to the long bone; and

after a secondary healing duration during which joint flexation occurs, removing the main body and the fragment pin from the long bone.

26. (New) The method of claim 25, wherein the distal body of the external fixator is connected to the main body with a securable adjustment segment, the securable adjustment segment having an unsecured state allowing movement of the distal body relative to the main body and a secured state preventing movement of the distal body relative to the main body such that the external fixator secures the joint in a fixed position, and further comprising:

attaching the main body to the hand with the securable adjustment segment in its unsecured state, and
securing the securable adjustment segment into its secured state for the initial healing duration.

27. (New) The method of claim 25, wherein the outrigger is pivotably connected to the main body, and further comprising:

securing the outrigger at a selected angular position relative to the main body for the initial healing duration and the secondary healing duration.

28. (New) The method of claim 27, wherein the act of securing the outrigger at a selected angular position occurs after the act of placing the fragment pin into the bone fragment.

29. (New) The method of claim 25, wherein the act of releasing the distal body comprises removing the distal body from the main body.

30. (New) The method of claim 25, wherein the act of securing the distal body of the external fixator assembly to a bone opposite the joint from the long bone comprises placing pins into the bone and securing the distal body to the placed pins; and wherein the act of releasing the distal body comprises removing the placed pins from the bone.

31. (New) A method of repairing a fracture in or adjacent a long bone, which fracture produces a bone fragment either partly or completely detached from the long bone, comprising:

securing a main body of an external fixator assembly such that it extends generally parallel to the long bone external to the patient's tissue, the external fixator assembly further comprising an outrigger which extends from the main body generally transversely over the fracture external to the patient's tissue, the outrigger being adapted to carry at least one fragment pin support;
changing the number of fragment pin supports carried by the outrigger without removing the outrigger from the main body; and
placing a fragment pin into the bone fragment, and using the outrigger and the fragment pin support to secure the fragment pin relative to the main body.

32. (New) The method of claim 31, wherein the act of changing the number of fragment pin supports carried by the outrigger comprises:

attaching a fragment pin support to the outrigger without removing the outrigger from the main body, and securing the fragment pin support in a selected location along the outrigger.

33. (New) The method of claim 32, wherein the fragment pin support is slidably attached to the outrigger, by sliding the fragment pin support from a distal end of the outrigger and in a direction toward the main body.

34. (New) The method of claim 32, wherein the fragment pin support is slidably attached to the outrigger, by sliding the fragment pin support from a proximal end of the outrigger and in a direction away from the main body.

35. (New) The method of claim 31, wherein the act of changing the number of fragment pin supports carried by the outrigger comprises:

removing a fragment pin support from the outrigger without removing the outrigger from the main body.

36. (New) The method of claim 35, wherein the fragment pin support is slidably removed from the outrigger, by sliding the fragment pin support in a direction toward the main body and off a proximal end of the outrigger.

37. (New) The method of claim 35, wherein the fragment pin support is slidably removed from the outrigger, by sliding the fragment pin support in a direction away from the main body and off a distal end of the outrigger.

38. (New) A method of repairing a fracture in or adjacent a long bone and at a joint, which fracture produces a bone fragment either partly or completely detached from the long bone, comprising:

securing a main body of an external fixator assembly such that it extends generally parallel to the long bone external to the patient's tissue, the external fixator assembly further comprising an outrigger which extends from the main body generally transversely over the fracture external to the patient's tissue;
changing the angle at which the outrigger extends from the main body by pivoting the outrigger about an axis generally parallel to the long bone, and securing the outrigger relative to the main body at the changed angle; and

placing a fragment pin into the bone fragment, and using the outrigger to secure the fragment pin relative to the main body.

39. (New) An external fixator for a bone fracture immediately adjacent a joint between a long bone and a second bone, the external fixator comprising:

a main body adapted for external fixation to the long bone, the main body extending along a longitudinal axis generally parallel to a longitudinal axis of the long bone;

an outrigger connected to the main body for extending over the joint and generally perpendicular to the longitudinal axis of the main body, the outrigger defining a track having a sliding recess; and

at least one bone fastener support riding in the sliding recess of the track;

wherein the sliding recess has an opening at an end of the sliding recess permitting bone fastener supports to be added to or removed from the track without removing the outrigger from the main body.

40. (New) The external fixator of claim 39, wherein the bone fastener supports are added to or removed from the track by longitudinal sliding.